

Remarks

This response is being submitted within three months after the shortened statutory period for responding to the office action mailed on April 28, 2003. Therefore, a petition and fee for an extension of time are filed with this response.

Hereinafter, the claims that are pending prior to the entry of the amendment in this response are called currently pending claims. This response amends currently pending claims 1, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17, and 18. Please add new claim 22. Please cancel currently pending claims 3, 19 and 20 without prejudice or disclaimer. Upon amendment, the above-identified US patent application will have two independent claims (currently amended claim 1 and currently pending claim 21) and 18 total claims (currently pending claims 7, 14 and 21; currently amended claims 1, 4-6, 8-13, and 15-18; and new claim 22). The Applicants previously paid for up to three independent claims and 20 total claims. Therefore, no fee for excess claims is due.

1. Support for amended and new claims.

Support for amending currently pending claims 1, 4-6, 8-13 and 15-18 and new claim 22 can be found in, inter alia, the originally filed application as follows:

Currently amended claim 1: original claim 1 and example 4

Currently amended claims 4-6, 8-13 and 15-18: original claims 4-6, 8-13 and 15-18.

New claim 22: original claim 1 and example 4.

2. Claim rejections under 35 U.S.C. 112, first paragraph.

The Examiner rejects currently pending claims 1 and 3-20 under 35 U.S.C. 112, first paragraph, on page 2 of the office action because the specification, while being enabling for the claimed formula of a polymeric material, allegedly does not reasonably provide enablement for the restriction in the currently pending claim 1. The Applicants respectfully traverse this rejection because the originally filed US application is enabling

for all of the currently pending claims. Furthermore, this rejection is now moot and should be withdrawn because the originally filed US application is enabling for currently amended claim 1, as described below.

2.1 Applicants submit that currently pending claim 1 has been amended to contain the following limitation:

"wherein R<sub>3</sub> and R<sub>4</sub>, which may be identical or different, are each an octoxyl group."

2.2 Written Description Requirement of 35 U.S.C. 112.

Applicants submit that the introduced limitation is supported by the disclosure as filed, *inter alia*, on page 5, last paragraph, in claim 1 and in example 4 which specifically discloses the synthesis of poly[(9, 9-dihexyl-2, 7-fluorene)-alt-co-(2, 5-dioctoxyl-1, 4-phenylene)]. Currently amended claim 1 therefore does not violate the written description requirement of 35 U.S.C. 112. See MPEP 2163(I)(b).

2.3 Enablement Requirement of 35 U.S.C. 112.

Applicants submit that example 4 discloses a method for making an embodiment of the claimed invention, namely, poly[(9, 9-dihexyl-2, 7-fluorene)-alt-co-(2, 5-dioctoxyl-1, 4-phenylene)]. Further, examples 6-10 disclose a method for using the claimed invention. It is believed that the specification bears a reasonable correlation to the entire scope of currently amended claim 1. Therefore, the enablement requirement of 35 U.S.C. 112 is satisfied by currently amended claim 1. See MPEP 2164.01(b). Furthermore, Applicants submit that the claimed genus of currently amended claim 1 can be used in the same manner as disclosed in example 4 without undue experimentation. See MPEP 2164.02.

The polymeric material disclosed in example 4 can be easily identified within the scope of currently amended claim 1. Since the compound is set forth in the specification, it is

believed that the specification is enabling. See MPEP 2164.06. Applicants submit that the specification provides considerable direction and guidance on how to practice the claimed invention, especially in working examples 1-4 and 6-10 and in the specification on page 5, last paragraph.

In order to address the Examiner's question of how the Applicants select the reactants on page 3 of the office action, Applicants submit that in order to form the product of the claimed formula, the Applicants select the compound 1, 4-dibromo-2, 5-dioctoxylbenzene as disclosed in example 4 and 2, 7-fluorene compound, wherein  $R_1$  and  $R_2$  may be identical or different, each H, a ( $C_1$ - $C_{22}$ ) linear or branched alkyl, alkoxy or oligo(oxyethylene) group, a ( $C_6$ - $C_{30}$ ) cycloalkyl group, or an unsubstituted or substituted aryl group as disclosed on page 5, last paragraph, of the specification. Therefore, currently amended claim 1 has support in the specification.

Applicants submit that the rejection under 35 U.S.C. 112, first paragraph is improper in view of the currently amended claim 1 and dependent claims 4-18 and should be reconsidered and withdrawn.

### 3. Claim rejections under 35 U.S.C. 102(b).

The Examiner rejects currently pending claims 1 and 3-20 under 35 U.S.C. 102(b) as being anticipated by Chemical Abstract 132:85386 or 131:352186 on the bottom of page 2 of the office action. The Applicants submit that the currently amended claim 1 specifies that  $R_3$  and  $R_4$  are each an octoxyl group ( $C_8$  alkoxy). Applicants further submit that currently amended claim 1 is therefore not anticipated by 132:85386 and 131:352186 because both references do not disclose  $R_3$  and  $R_4$  each being octoxyl groups.

Applicants submit that since currently amended claim 1 is not anticipated by the prior art, dependent claims 4-18 are not anticipated by the prior art either.

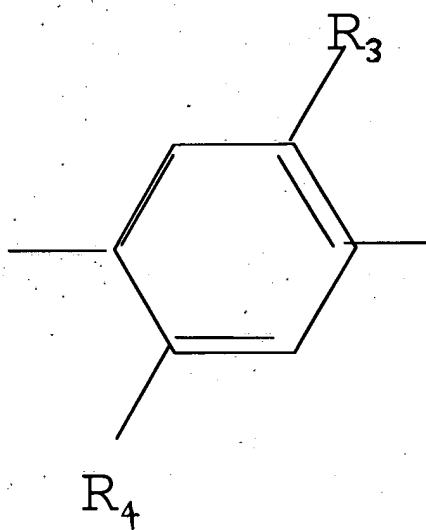
## 4. Claim rejections under 35 U.S.C. 103(a).

The Examiner rejects currently pending claim 21 under 35 U.S.C. 103(a) as being unpatentable over Chemical Abstracts 132:85386 or 131:352186 or 133:267744 or 133:185304 or 133:59158 on page 3 of the office action. The Applicants agree with the Examiner that the references differ from currently pending claim 21 and amended claim 1 in that they do not disclose the use of octoxyl groups as R3 and R4. Applicants respectfully remind the Examiner that in the previous response on page 2, it was submitted that Chemical Abstract 133:185304 discloses a structure with 1, 3-phenylene.

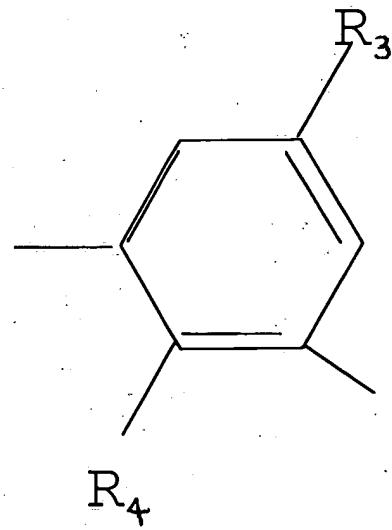
Currently pending claim 1 and currently amended claim 1 of the present invention recite a polymeric material comprising alternate substituted fluorene and phenylene units as presented by the formula:

Formula 1: Poly [(R<sup>1</sup>, R<sup>2</sup> - 2, 7 - fluorene) - (2, 5 - R<sup>3</sup>, R<sup>4</sup> - 1, 4 - phenylene)]

The difference between a 1,4-phenylene according to the invention and a 1,3-phenylene according to Chemical Abstract 133:185304 is as follows:



1,4-phenylene



1,3-phenylene

Thus, the polymer disclosed in 133:185304 is even farther away from the claimed invention than was acknowledged by the Examiner in the outstanding official action.

The Examiner asserts that it would have been obvious to one of ordinary skill in the art to select the reactant and process conditions to form the same products of the claimed formula, since they have been shown to be effective in a similar system and thus would have been expected to provide adequate results. The Examiner further asserts that there is no showing of unexpected results derived from said selections. The Applicants respectfully traverse the Examiner's assertion.

The Examiner is respectfully reminded that in order to establish a *prima facia* case of obviousness, three basic criteria must be met.

- First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the references or to combine reference teachings.
- Second, there must be a reasonable expectation of success.
- Finally, the prior art reference or references when combined must teach or suggest all the claim limitations.

The Examiner is further respectfully reminded that the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and must not be based on Applicants' disclosure. See MPEP 2143. In the outstanding Office Action, the Examiner does not combine the teachings of the references, but instead rejects currently pending claim 21 in view of each of the references 132:85386 or 131:352186 or 133:267744 or 133:185304 or 133:59158 separately under 35 U.S.C. 103(a).

Applicants respectfully submit that none of the references expressly or implicitly suggest the claimed invention in currently pending claim 21 and currently amended claim 1. Moreover, even if the references were combined, the combined references would not teach or suggest all the claim limitations of currently pending claim 21 and

currently amended claim 1. Furthermore, none of the references include any suggestion or motivation to one of ordinary skill in the art to modify the references.

As explained in the preceding section, all of the references, even if combined, do not teach every element of the claimed invention in currently pending claim 21 and currently amended claim 1. In addition, the Applicants submit that there is no motivation for someone with ordinary skill in the art to attempt to modify  $R_3$  and  $R_4$  in the disclosed formulas in the cited references. After all, why would a person with ordinary skill in the art be motivated to change  $R_3$  and  $R_4$  to be  $C_8$ -alkoxy if the prior art teaches and suggests using  $C_6$ -alkoxy or  $C_{10}$ -alkoxy for  $R_3$  and  $R_4$ ?

In the paragraph bridging pages 3 and 4 of the outstanding Office Action, the Examiner asserts that it would have been obvious to prepare a polymeric material wherein  $R_3$  and  $R_4$  are each an octoxyl group since the cited references disclose polymeric materials wherein  $R_3$  and  $R_4$  are each  $C_6$ -alkoxyl or  $C_{10}$ -alkoxyl. Thus, the Examiner asserts that it would have been obvious to someone with ordinary skill in the art to modify the cited references to produce the Applicants' claimed invention, wherein  $R_3$  and  $R_4$  are each an octoxyl group.

According to the first paragraph of MPEP § 2143, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a cited reference. The Examiner does not refer to anything in the cited references themselves that would motivate someone with ordinary skill in the art to modify the cited references to produce the Applicants' claimed invention, wherein  $R_3$  and  $R_4$  are each an octoxyl group. Instead, the Examiner simply asserts that it would have been obvious to someone with ordinary skill in the art to modify the cited references, wherein  $R_3$  and  $R_4$  are each  $C_6$ -alkoxyl or  $C_{10}$ -alkoxyl, to produce the Applicants' claimed invention, wherein  $R_3$  and  $R_4$  are each an octoxyl group. The Examiner's assertion, thus, appears to be based on common knowledge in the art or "well known" prior art.

The Examiner is respectfully requested to consider MPEP § 2144.03, which imposes severe limitations on an Examiner's ability to rely on common knowledge in the art or "well known" prior art. According to the second paragraph of MPEP § 2144.03, these limitations are derived from constraints imposed by the Administrative Procedure Act (APA).

For example, section A of MPEP § 2144.03 explains when it is appropriate to take official notice without documentary evidence to support the Examiner's conclusion. According to the third sentence of section A of MPEP § 2144.03, "[o]fficial notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known" (emphasis added). Similarly, according to the fourth sentence of section A of MPEP § 2144.03, "the notice of facts beyond the record which may be taken by the examiner must be 'capable of such instant and unquestionable demonstration as to defy dispute'" (emphasis added).

In the outstanding Office Action, the Examiner asserts that it would have been obvious to someone with ordinary skill in the art to modify the cited references, wherein R<sub>3</sub> and R<sub>4</sub> are each C<sub>6</sub>-alkoxyl or C<sub>10</sub>-alkoxyl, to produce the Applicants' claimed invention, wherein R<sub>3</sub> and R<sub>4</sub> are each an octoxyl group. However, this assertion is not supported by the cited references because none of the cited references disclose or suggest modifying polymeric materials so that R<sub>3</sub> and R<sub>4</sub> are each an octoxyl group. Moreover, this assertion is impermissible under MPEP § 2144.03 because the assertion is not capable of "such instant and unquestionable demonstration as to defy dispute." Consequently, the Examiner's assertion is improper and should be withdrawn.

For the foregoing reasons, the Examiner should withdraw his assertion that it would have been obvious to someone with ordinary skill in the art to modify the cited references, wherein R<sub>3</sub> and R<sub>4</sub> are each C<sub>6</sub>-alkoxyl or C<sub>10</sub>-alkoxyl, to produce the Applicants' claimed invention, wherein R<sub>3</sub> and R<sub>4</sub> are each an octoxyl group. And

because the prior art does not teach or suggest modifying the cited references to produce the Applicants' claimed invention (wherein R<sub>3</sub> and R<sub>4</sub> are each an octoxyl group), currently amended claim 1 and currently pending claim 21 are nonobvious over the prior art.

The remaining claims (currently amended claims 4-6, original claim 7, currently amended claims 8-13, original claim 14, currently amended claims 15-18, and new claim 22) are nonobvious over the prior art at the very least because they are each dependent on a nonobvious base claim (currently amended Claim 1 or currently pending Claim 21). In addition, the remaining claims are further nonobvious over the prior art because the prior art does not teach or suggest the particular limitations that are claimed in these subclaims.

Reconsideration of the amended application is respectfully requested. The application is now in condition for allowance. Allowance of the application at an early date is respectfully requested.

Applicants reserve the right to seek protection for any unclaimed subject matter, either subsequently in the prosecution of the present case or in a divisional or continuation application.

This response amends currently pending claims 1, 4-6, 8-13 and 15-18; cancels currently pending claims 3, 19 and 20; and adds new claim 22. The amendments, cancellations, and additions that are described in the preceding sentence were done to more fully claim the invention and were not done to overcome rejections under 35 U.S.C. 112, to overcome the prior art, or to overcome any other rejections or objections. The amendments, cancellations, and additions that are described in the first sentence of this paragraph shall not be considered necessary to overcome rejections under 35 U.S.C. 112, shall not be considered necessary to overcome the prior art, and shall not be considered necessary to overcome any other rejections or objections.

The Commissioner is authorized to charge any additional fees which may be required or credit overpayment to deposit account no. 12-0415. In particular, if this response is not timely filed, then the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 CFR 1.136 (a) requesting an extension of time of the number of months necessary to make this response timely filed and the petition fee due in connection therewith may be charged to deposit account no. 12-0415.

I hereby certify that this correspondence is being deposited with the United States Post Office with sufficient postage as first class mail in an envelope addressed to Commissioner for Patents

POB 1450, Alexandria, VA 22313-1450 on

October 28, 2003

(Date of Deposit)

John Palmer

(Name of Person Signing)

(Signature)

October 28, 2003

(Date)

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Enclosures: A petition and a copy of a petition for an extension

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